

**Mini-ITX SBC supports AUPS Sub-System, Intel® 22nm  
Atom™/Celeron® on-board SoC, Wide-range 9V~26V DC input,  
VGA/ Dual LVDS, SATA, Dual GbE, USB 3.0, Audio,  
CFast and RoHS**

# **eKINO-BT**

## **Quick Installation Guide**

**Version 1.0**

Feb 18, 2016.

### **Package List**

eKINO-BT package includes the following items:

- 1 x eKINO-BT single board computer
- 2 x SATA with 5V output cable kit
- 1 x I/O shielding (P/N:45014-0052C0-00-RS)
- 1 x QIG(Quick Installation Guide)
- 1 x Utility CD



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## Specifications

- SoC:
  - Intel® Atom™ E3845 on-board SoC  
(1.91GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Atom™ E3827 on-board SoC  
(1.75GHz, dual-core, 1MB cache, TDP=8W)
  - Intel® Atom™ E3826 on-board SoC  
(1.46GHz, dual-core, 1MB cache, TDP=7W)
  - Intel® Atom™ E3825 on-board SoC  
(1.33GHz, dual-core, 1MB cache, TDP=6W)
  - Intel® Atom™ E3815 on-board SoC  
(1.46GHz, single-core, 512KB cache, TDP=5W)
  - Intel® Celeron® J1900 on-board SoC  
(2GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Celeron® N2930 on-board SoC  
(1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  - Intel® Celeron® N2807 on-board SoC  
(1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS: AMI UEFI BIOS
- Memory:
  - Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826)
  - One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807, E3825, E3815)
- Graphics Engine:
  - Intel® HD Graphics Gen 7 Engines with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2

- Display Output:
  - VGA (up to 2560x1600@60Hz)
  - LVDS1: 18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter (up to 1920x1200@60Hz)
  - LVDS2: 18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter (up to 1920x1200@60Hz)
  - \* The eKINO-BT supports only one LCD when using the optional 7.4 V battery (BATKIT-2S2P3800-R10/BAT-LI-2S2P3800).**
- Ethernet:
  - Dual LAN: Realtek RTL8111E PCIe controller
- Super IO: F81866D-I
- I/O Interface:
  - 4 x RS-232
  - 1 x RS-422/485
  - 1 x CFast slot
  - 2 x SATA with 5V output
  - 4 x USB 2.0 (2 on rear IO, 2 by pin header)
  - 2 x USB 3.0 (rear IO)
  - 1 x 6-pin header for KB/MS
- TPM: 2 x 10-pin header
- SMBus: 1 x 4-pin (1x4) wafer
- I2C: 1 x 4-pin (1x4) wafer
- microSD: 1 x microSD slot (E38XX SKU only)
- Front Panel:
  - 1 x Front panel connector
  - (power LED, HDD LED, speaker, power button, reset button)
- LAN LED:
  - 2 x 2-pin headers for LAN1 Link LED, LAN2 Link LED
- Digital I/O: 8-bit digital I/O (4-bit input, 4-bit output)
- Expansion :
  - 1 x Full-size PCIe Mini card slot (with USB 2.0)
  - 1 x PCIe x1

- Audio:
  - Realtek ALC662 HD codec
  - 2 x Audio jacks (rear I/O)
  - Front audio: 1 x 10-pin header
- Fan Connector:
  - 1 x 4-pin smart fan
  - 1 x 3-pin system fan
- Watchdog Timer:
  - Software programmable support 1~255 sec. system reset
- Power supply:
  - Maximum input voltage range 9V~26V
  - Recommended operating input voltage range: 12V~24V
  - 1 x External DIN 4-pin DC jack
  - 1 x Internal 4-pin (2x2) power connector
- Power Consumption:
  - +12V @1.55A (Intel® Celeron® J1900 CPU, 2 x 4GB 1333 MHz DDR3 memory)
- Operating Temperature:
  - 0°C ~ 40°C with AUPS sub-system
  - 20°C ~ 60°C without AUPS sub-system
- Storage Temperature:
  - 10°C ~ 50°C with AUPS sub-system
  - 30°C ~ 70°C without AUPS sub-system
- Operation Humidity: 5% ~ 95%, non-condensing
- Weight(GW/ NW): 1100g / 400g

## Ordering Information

- **EKINO-BT-J19001-R10:**  
Mini-ITX SBC supports AUPS Sub-System, Intel® Celeron® quad-core processor J1900 (10W), Wide-range 9V~26V DC input, VGA/dual LVDS, SATA, Dual GbE, USB 3.0, Audio, CFAST and RoHS
- **EKINO-BT-N29301-R10:**  
Mini-ITX SBC supports AUPS Sub-System, Intel® Celeron® quad-core processor N2930 (7.5W), Wide-range 9V~26V DC input, VGA/dual LVDS, SATA, Dual GbE, USB 3.0, Audio, CFast and RoHS
- **EKINO-BT-N28071-R10:**  
Mini-ITX SBC supports AUPS Sub-System, Intel® Celeron® dual-core processor N2807 (4.3W), Wide-range 9V~26V DC input, VGA/dual LVDS, SATA, Dual GbE, USB 3.0, Audio, CFast and RoHS
- **EKINO-BT-E38XX1-R10:**  
Mini-ITX SBC supports AUPS Sub-System, Intel® Atom™ E38XX on-board SoC, Wide-range 9V~26V DC input, VGA/dual LVDS, SATA, Dual GbE, USB 3.0, Audio, CFast and RoHS (by request MOQ: 100pcs/lot)
- **BATKIT-2S2P3800-R10:** 2S2P 7.4V 3800mAh AUPS battery kit
- **BAT-LI-2S2P3800:** 2S2P 7.4V 3800mAh smart battery
- **BATKIT-4S2P3800-R10:** 4S2P 14.8V 3800mAh AUPS battery kit
- **BAT-LI-4S2P3800:** 4S2P 14.8V 3800mAh smart battery
- **63000-FSP0601AD101C746-RS:**  
60W/12V power adaptor, 90VAC~260VAC, 4-pin DIN
- **63000-FSP120AAB-RS:**  
120W/19V power adapter, 90VAC~264VAC, 4-pin DIN
- **32205-003800-300-RS:** RS-422/485 cable
- **32006-000300-100-RS:** PS/2 KB/MS Y-cable without bracket

## Jumpers setting and connectors

LABEL	FUNCTION
J_CMOS1	CMOS state setting
ATX/AT1	Select ATX or AT mode
J_UPS1	Select UPS or Battery mode
JP1	Select Voltage for LVDS1
JP2	Select Voltage for LVDS2
JP3	Enable/Disable Battery
SW1	Select Resolution For LVDS1
SW2	Select Resolution For LVDS2
LAN_USB1	RJ45 LAN and USB 3.0 Connector
LAN_USB2	RJ45 LAN and USB 2.0 Connector
USB1	Internal USB 2.0 Connectors
KB_MS1	PS/2 MOUSE & KEYBOARD Connector
COM1/VGA1	External 1 Port Serial Port DB-9 Connectors
COM2/3	External 2 Serial Port Connectors
COM4	Internal 2x5 Pin Serial Port
COM5	4 Pin RS422/485
AUDIO2	Extended Audio Module Connector
SATA1,2	Serial ATA Connectors
SATA_PWR1,2	Serial ATA Power Connectors
IR1	IrDA Infrared Interface Connector
JSPI1,2	Flash SPI ROM
SYS_FAN1	System Fan Connector
CPU_FAN1	CPU Fan Connector
DIO1	Digital I/O Connector
M_PCIE1	PCI-E Mini Card
F_PANEL1	PWR & RST Buttons and Indicators
SPWR_IN1	ADAPTER DC12V POWER IN
VIN1	Power Supply DC12V Power In
CN9	EC Debug Port
TPM1	TPM Connector
SMBUS1	SMBUS Connector

BAT1	Battery Connector
LAN_LED1	LED LAN LINK ACT CONNECTOR
J1	6 Pin Battery LED
LVDS1,2	30pin LVDS Connectors
INV1,2	5 Pin Inverter Connector
PCN1	12 Pin Battery Connector
AUDIO1	Audio Connector
CFAST1	CFAST Connector
MICROSD1	Micro SD Card Connector
CPU_XDP1	Intel XDP Connector
PCIE1	PCIE x 1 Connector

<b>J_CMOS1: Clear CMOS button</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Open	Normal Operation (Default)
Push	Clear CMOS Setup

<b>J_ATX_AT1: AT/ATX mode select switch</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short A - B	ATX Mode (default)
Short B - C	AT Mode

<b>J_UPS1: Select UPS or Battery mode</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1 - 2	UPS mode (default)
Short 2 - 3	Battery mode

<b>JP1: Select Voltage for LVDS1</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1 - 2	3.3V (default)
Short 2 - 3	5V

<b>JP2: Select Voltage for LVDS2</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1 - 2	3.3V (default)
Short 2 - 3	5V

<b>JP3: Enable/Disable Battery</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1 - 2	Enable Battery (default)
Short 2 - 3	Disable Battery

<b>SW1/2: LVDS panel resolution selection</b>	
* ON=0, OFF=1; Single=S, Dual=D	
<b>4-3-2-1</b>	<b>DESCRIPTION</b>
0000	800x600 18-bit Single (Default)
0001	1024x768 18-bit Single
0010	1024x768 24-bit Single
0011	1280x768 18-bit Single
0100	1280x800 18-bit Single
0101	1280x960 18-bit Single
0110	1280x1024 24-bit Dual
0111	1366x768 18-bit Single
1000	1366x768 24-bit Single
1001	1440x960 24-bit Dual
1010	1400x1050 24-bit Dual
1011	1600x900 24-bit Dual
1100	1680x1050 24-bit Dual
1101	1600x1200 24-bit Dual
1110	1920x1080 24-bit Dual
1111	1920x1200 24-bit Dual



<b>LAN_USB1: RJ45 LAN and USB3.0 Connector</b>			
<b>RJ45 LAN</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	MD0+	2	MD0-
3	MD1+	4	MD1-
5	MD2+	6	MD2-
7	MD3+	8	MD3-
9	VCC	10	GND
11	LINK_ACT+	12	LINK_ACT-
13	100-	14	1000-
15	GND		
<b>USB3.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VBUS	2	D1-
3	D1+	4	GND1
5	STDA_SSRX1_N	6	STDA_SSRX1_P
7	GND_DRAIN	8	STDA_STX1_N
9	STDA_STX1_P		

<b>LAN_USB2: RJ45 LAN and USB2.0 Connector</b>			
<b>RJ45 LAN</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	MD0+	2	MD0-
3	MD1+	4	MD1-
5	MD2+	6	MD2-
7	MD3+	8	MD3-
9	VCC	10	GND
11	LINK_ACT+	12	LINK_ACT-
13	100-	14	1000-
15	GND		
<b>USB2.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VBUS	2	D1-

3	D1+	4	GND1
<b>USB1: Internal USB Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	GND
3	-DATA	4	+DATA
5	+DATA	6	-DATA
7	GND	8	VCC

<b>KB_MS1: Keyboard &amp; mouse pin header</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC5_KBMS	2	MSDATA
3	MSCLK	4	KBDATA
5	KBCLK	6	KBGND

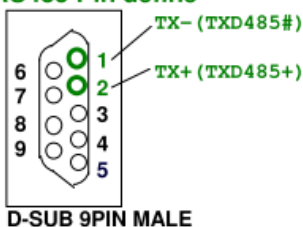
<b>COM1/VGA1: External 1 Port Serial Port DB-9 Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	CRT_PLUG#
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

<b>COM2/3: External Serial Port Connector(COM2&amp;3)</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	DCD1	6	DSR1
2	RXD1	7	RTS1
3	TXD1	8	CTS1
4	DTR1	9	RI1
5	GND		

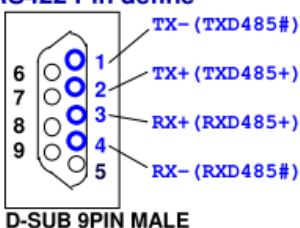
COM4: Internal Serial Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD2	6	-NCTS2
2	-NDSR2	7	-NDTR2
3	NSIN2	8	-XRI2
4	-NRTS2	9	GND
5	NSOUT2	10	GND

COM5: RS-422/485 serial port connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

#### RS485 Pin define



#### RS422 Pin define



AUDIO2 : Audio Source Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LMIC2-L	2	ANALOG GND
3	LMIC2-R	4	PRESENCE#
5	LLINE2-R	6	MIC2-JD
7	FRONT-IO	8	NC
9	LLINE2-L	10	LINE2-JD

SATA1, SATA2: SATA 3Gb/s Drive Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		

<b>SATA_PWR1, SATA_PWR2: SATA Power Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+V5S	2	GND

<b>IR1: IrDA connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+V5S	2	NC
3	IR-RX	4	GND
5	IR-TX		

<b>JSPI1: BIOS SPI ROM Programming Pin</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+V3.3M_SPI_CON	2	SPI_CS
3	SPI_SO_SW	4	SPI_CLK_SW
5	SPI_SI_SW	6	GND

<b>SYS_FAN1: System FAN connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	Rotation Signal	2	+12V
3	GND		

<b>CPU_FAN1: CPU FAN connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+12V
3	Rotation Signal	4	PWM Control Signal

<b>DIO1: 8 Bits Digital I/O Pin Header</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+V5S
3	DOUT3	4	DOUT2
5	DOUT1	6	DOUT0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

<b>M_PCIE1: PCI-E Mini Card Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	CLK-	12	N/C
13	CLK+	14	N/C
15	GND	16	N/C
17	PCIRST#	18	GND
19	N/C	20	VCC3
21	GND	22	PCIRST#
23	PERN2	24	3VDual
25	PERP2	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PETN2	32	SMBDATA
33	PETP2	34	GND
35	GND	36	USBD-
37	N/C	38	USBD+
39	N/C	40	GND
41	N/C	42	N/C
43	N/C	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	VCC3

<b>F_PANEL1 : External Switches and Indicators panel</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LED_PWR	2	BEEP_PWR
3	NC	4	NC
5	GND	6	NC
7	PWR_BTN	8	PC_BEEP#
9	GND	10	NC
11	SATA_LED+	12	RESET
13	SATA_LED-	14	GND

<b>SPWR_IN1: ADAPTER DC12V POWER IN</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	12V	2	GND
3	12V	4	GND
5	GND		

<b>VIN1: Power Supply DC12V Power IN</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	GND
3	+12V	4	+12V

<b>CN9: EC debug port</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	NC
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	NC
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_KSI5
17	EC_EPP_PD7	18	EC_EPP_KSI4

<b>TPM1: TPM Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LCLK	2	GND
3	LFRAME#	4	KEY
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN#
19	LPCPD#	20	LDRQ#

<b>SMBUS1: SMBUS Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	SMB_DATA
3	SMB_CLK	4	+V5S

<b>BAT1: Battery Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VBATT	2	GND

<b>LED_LAN1: LAN link LED connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LAN1 LED LINK_ACT-	2	+V3.3LAN
3	LAN2 LED LINK_ACT-	4	+V3.3LAN

<b>J1 : Battery LED Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC5	2	DISCHARGING LED
3	VCC5	4	CHARGING LED
5	VCC5	6	DC IN LED

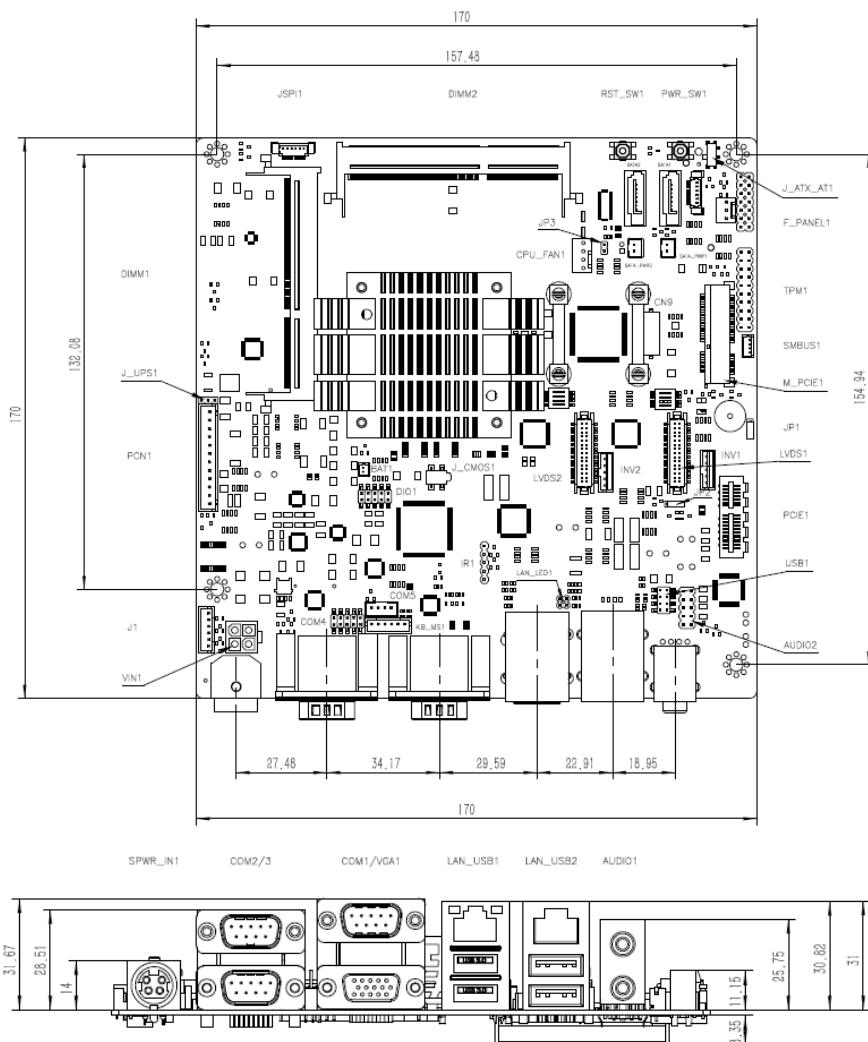
<b>LVDS1/2: LVDS panel Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND1	2	GND2
3	A_Y0	4	A_Y0#
5	A_Y1	6	A_Y1#
7	A_Y2	8	A_Y2#
9	A_CK	10	A_CK#
11	NC	12	NC
13	GND3	14	GND4
15	B_Y0	16	B_Y0#
17	B_Y1	18	B_Y1#
19	B_Y2	20	B_Y2#
21	B_CK	22	B_CK#
23	NC	24	NC
25	GND5	26	GND6
27	VCC_LCD	28	VCC_LCD
29	VCC_LCD	30	VCC_LCD

<b>INV1/2: LCD panel backlight power connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LCD_BKLTCTL	2	GND
3	+12V	4	GND
5	BL_EN		

<b>PCN1: 12 Pin Battery Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VBAT	2	VBAT
3	VBAT	4	VBAT
5	BAT_SMBCLK	6	BAT_SMBDATA
7	BAT_TH	8	BAT ID
9	GND	10	GND
11	GND	12	GND



# Board Layout: Jumper and Connector Locations



**\*\* E3825、E3815、N2807 僅有 DIMM1 上件**

**(Unit: mm)**